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List of Green Sand Fossils found at Haddonfield, N. J., by Mr. Foulke and Mr. Lea.

Acephala.

Arca Eufaulensis, *Gabb.*
Arca Saffordi, *Gabb.*
Astarte crenulirata, *Con.*
Astarte octolirata, *Gabb.*
Anomia tellinoides ? *Mort.*
Anomia argentaria, *Mort.*
Cardium multiradiatum, *Gabb.*
Cardium Eufaulense, *Con.*
Cardita subquadrata, *Gabb.*
Corbula subcompressa, *Gabb.*
Corbula crassiplicata, *Gabb.*
Corbula Foulkei, *Lea.*
Crassatella lintea, *Con.*
Ctenoides crenulicosta, *Rœmer.*
Dosinia depressa, *Con.*
Dosinia Haddonfieldensis, *Lea.*
Dentalium Eufaulensis, *Gabb.*
Exogyra costata, *Say.*
Gervilia ensiformis, *Con.*
Inoceramus involutus, *Sow.**
Leda protexta, *Gabb.*
Leda longifrons, *Con.*
Linaria metastriata, *Con.*
Legumen appressus, *Con.*
Legumen ellipticus, *Con.*
Modiola Juliæ, *Lea.*
Nucula percrassa, *Con.*
Ostrea denticulifera, *Con.*
Ostrea larva, *Lam.* = falcata, *Mort.*
Ostrea plumosa, *Mort.*
Ostrea tecticosta, *Gabb.*
Pecten simplicius, *Con.*
Pinna laqueata, *Con.*
Siliquaria biplicata, *Con.*
Tellina (Tellinimera) eborea, *Con.*
Trigonia Eufaulensis, *Gabb.*

Gasteropoda.

Lunatia paludiformis.
Turbonilla laqueata, *Con.*
Turritella vertebroides, *Mort.*
Turritella Hardemanensis, *Galb.*

Cephalopoda.

Ammonites placenta, *De Kay.*
Scaphites iris, *Con.* = Conradi, *Mort.*

Echinodermata.

Cidares armigera, *Mort.*

Coprolite.—In this small coprolite is the tooth of a ganoid fish, probably of the genus *Enchodus.*

The Academy proceeded to an election to fill the vacancy in the Committee on Conchology, caused by the resignation of Dr. C. J. Cleburne; and Mr. Geo. W. Tryon was chosen.

The death of Mr. Geo. M. Keim, a member of the Academy, was announced.

July 2d.

Mr. Lea, President, in the Chair.

Twenty-one members present.

Dr. Le Conte presented the following communication from Baron Osten Sacken, on the sex of Cynipidæ :

One of the most puzzling questions in Entomology is the total absence of the male sex in some genera of *Cynipidæ.* Of the numerous species of the genus *Cynips* proper, the females alone are known. Hartig, the monographist of this family, has had the patience to collect about 28,000 galls of *Cynips divisa,* to rear the flies from them and to examine, one by one, the 9 or 10,000 flies obtained in this way. All proved to be females. Similar investigations, which he undertook with several thousands of specimens of different other species, led to the same result. This total absence of one sex in the genera *Cynips*, *Neurosterus*, *Apophyllus* Hartig, appeared the more strange and unaccountable, as in the closely allied genera *Teras*, *Andricus*, *Trigonaspis*, *Spathegaster*, males and females occurred in almost equal numbers. The supposition that the males had escaped the investigations of entomologists seemed inadmissible in the case of insects obtained mostly *from rearing* and not by means *of catching*. This, combined with the circumstance that the presence or absence of the males occurred constantly through whole genera and not merely in single species, seemed to favor the belief that in some genera the males did not exist at all.

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* Min. Conch. Tab. 442. The figure by Hall in Fremont's Report, p. 309, seems to be the same with this from Haddonfield. Mr. Hall supposes the specimen which came from East of the Rocky Mountains, 105° long. 39° lat., to be the same with Sowerby's from the Upper Chalk at Lewes, England.

More than one hypothesis has been proposed for the solution of this anomaly. Hartig, after having studied the anatomy of some Cynipidæ, imagined that he had discovered their being androgynous. Soon, however, he gave up this conclusion and confessed his error. Erichson proposed another solution. Those who have reared gall flies know that very frequently galls of the same kind produce *Cynipidæ* of two different forms, one of them being the true gall-producing *Cynips*, (subfamily *Psenides* Hartig,) the other having been hitherto considered as a parasite, (subfamily *Inquilinæ*.) The latter occur in male and female specimens. Erichson suggested, not as a result of actual observation, but as a mere idea for future investigation, that the two forms, reared from the same gall, however different in their characters, might be the same species; that the male *inquilinæ* were in reality the males of *Cynips*, and that their females had to be considered as a *second form* of the gall-producing female *Cynips*. He reminded that this would not be the only instance, among insects, of the occurrence of *two forms* of females, the same being the case with some butterflies and some *Dytisci*.

The hypothesis of a parthenogenesis among the *Cynipidæ* has also been resorted to, and Siebold discusses it in the latter part of his well-known pamphlet.

If I have dwelt at some length on all these hypotheses, it was in order to show the importance which is attached to this question and the degree of its apparent inextricability, which has compelled men of science to have recourse to such improbable and far-fetched explanations.

Engaged since last autumn in the study of galls and gall-flies, I have happened quite recently to make an observation which would lead to a more simple solution of the vexed question.

I discovered on the leaf of the red oak a very curious, elongated-fusiform, petiolate, pale green gall, about an inch long, and, in its stoutest part, but a little more than one-tenth of an inch broad. Having been lucky enough to rear the insect from it, I was struck by its resemblance with *Cynips confluens* Harris, the originator of the large, globular gall of the red oak, commonly called *oak apple*. The specimen being a male, and the specimens of *C. confluenta* which I have seen being all females, it struck me immediately that this was the solution of the mystery. Male and female occur in galls of two altogether different forms!

If it is so, one might object, how does it happen that this observation has never been made before? Why did the German entomologists, having reared so many, (I believe more than 150 gall-flies), never come across it? The explanation may be this: Generally the distinguishing characters of the species of this family are so slight, that it would have been difficult to assign a certain male to a certain female without having reared them from the same gall. Entomologists may have reared males from one gall and their females from another, without suspecting their identity. If I succeeded better, it was merely because I happened to make my observation on a species with very striking characters, which were therefore easy to identify although the specimens were obtained from another gall and differed, as males usually do, in size and color from the females.

Another, perhaps more serious objection, may be made. If the males of the genera, hitherto thought agamous, exist, how does it happen that Hartig, with the abundant material in his possession, did not have a single one of them ; it seems that if he had had but *one*, he would not have pronounced those genera agamous. To this I answer that he may have possessed males of this description, but have located them in other genera. Hartig's classification, in his paper on *Cynipidæ*, is a mere outline, as he intended to publish some time a more detailed monograph. This not having been done, the definitions of his genera, as they stand now, are altogether insufficient, and in most cases I have been unable to make them out. Still I can easily conceive that he might have placed the female of *C. confluens* in one genus, and what I take to be its male in another.

However, be it as it may, the only material point in the present case is to know whether the male which I reared from the spindle-shaped gall is specifically identical with the females obtained from the common oak-apple.

My belief of their identity is based upon their exact similitude in everything except those characters which usually distinguish the males from the females, (as size, color, length and number of joints of the antennæ). This similitude alone would perhaps not be conclusive, if the characters of the species, as already remarked, were not rather uncommon and sufficiently striking to facilitate its immediate recognition. The thorax is deeply cribrose, two longitudinal, parallel, somewhat indistinct carinæ begin at the collare, and stop before the middle of the thorax ; two other carinæ converge towards the scutellum ; the scutellum is also deeply sculptured and has two foveæ at the basis ; the wings are conspicuous by a brown spot near the areolet and by some peculiarities of the neuration ; the subcostal, for instance, becomes obsolete just before reaching the anterior margin, the veins surrounding the areolet have a peculiar shape, etc. All of which are exactly reproduced in the male and female specimens in question. The male has 15, the female 13-jointed antennæ ; the former is smaller, more slender and much darker in color than the latter.

The supposition of the identity of these insects is finally strengthened by their galls occurring on the same tree, the red oak, having been found in the same localities, and the perfect insect being hatched at the same season.

A glance at the specimens would, I have no doubt, convince any entomologist, conversant with the Cynipidæ, of their specific identity. Not being able, however, to convey a demonstration of the same force by means of a mere description, and being sufficiently aware that a fact so novel and so extraordinary as the production, by the sting of the same insect, of two altogether different forms of galls, according to the sex of the egg or of the future larva, cannot be admitted in science without further inquiry, I offer the above statement as a mere suggestion for future research.

July 9th.

Vice President VAUX in the Chair.

Twelve members present.

The following papers were presented for publication :

"Descriptions of certain species of Diurnal Lepidoptera, found within the limits of the United States and of British America," by Wm. H. Edwards.

"On Cyprinus corporalis, Mitchell, referring it to the genus Semotilus, Rafinesque," by Charles C. Abbott.